

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A control system for detecting nozzle wear in an industrial shower header including one or more ~~a plurality of liquid~~ spray nozzles, ~~for~~ orienting liquid at a predetermined pressure and droplet size comprising:

~~-means for determining a calculated flow rate for the plurality of liquid spray nozzles at a given operating pressure;~~

~~a flow sensor disposed to monitor means for continuously monitoring an actual flow rate of liquid through the shower nozzle header;~~

~~a pressure sensor disposed to monitor an actual operating pressure of liquid applied to the shower header; and~~

~~a controller connected to the flow sensor and pressure sensor for receiving signals therefrom, the controller being configured to determine a calculated flow rate for the actual operating pressure,~~

~~compare means for comparing the calculated desired flow rate with the actual flow rate and create creating a feedback signal when a difference between the calculated flow rate and the actual flow rate exceeds a threshold, is exceeded; and~~

~~provide means for providing the feedback signal to the spray system to adjust an operating condition thereof.~~

2. (Original) The system of claim 1 wherein the feedback signal is operative to initiate a cleaning cycle or alarm warning.

3. (Currently Amended) The system of claim 1 wherein the controller ~~means for determining~~ includes a look-up table with entries for liquid flow rate at various discrete operating pressures of the nozzles.

4. (Currently Amended) The system of claim 3 wherein the controller ~~is configured means for determining includes means for interpolating between the discrete operating pressures in the look-up table for determining the calculated flow rate for the actual providing an operating pressure for the nozzles.~~

5. (Currently Amended) A method for monitoring the performance of a spray header having one or more spray nozzles nozzle in an industrial spraying system, including the steps of control system for controlling the pressure of liquid applied to a nozzle comprising:

measuring an actual operating pressure of liquid applied to the spray header;
determining a calculated flow rate for the actual operating pressure calculating a liquid flow rate value for a nozzle header at a desired pressure to derive a calculated liquid flow rate value;

measuring an actual flow rate of liquid applied at the spray desired pressure through the nozzle header to derive an actual flow rate value;

comparing the actual flow rate value with the calculated flow rate value;

determining whether a difference between the actual flow rate and the calculated flow rate exceeds a pre-selected threshold exceeds a percentage error deviation from the measured flow rate value; and

providing an output signal for adjusting an operating condition of the spraying system when the difference between the actual flow rate and the calculated flow rate exceeds the threshold the percentage error exceeds a certain value.

6. (Currently Amended) A spray controller for providing a signal indicative of nozzle performance detection in an industrial shower header including one or more liquid spray nozzles, ~~for orienting liquid spray at a certain operating pressure and droplet size~~ comprising:

a first connection to a pressure sensor for receiving a signal indicating an actual operating pressure of liquid applied to the shower header;

a second connection to a flow sensor for receiving a signal indicating an actual flow rate of liquid applied to the shower header;

a microprocessor programmed to determine

~~means for determining a calculated flow rate for the actual operating pressure for the one or more liquid spray nozzles at a given operating pressure;~~

~~means for continuously monitoring an actual flow rate of liquid through the nozzle header;~~

means for comparing compare the calculated desired flow rate with the actual flow rate and create creating a feedback signal when a difference between the calculated flow rate and the actual flow rate exceeds a threshold is exceeded; and

provide means for providing the feedback signal to the spray system to adjust an operating condition thereof.